Tops 6 Power Pure White Ceramic LED
OSW443T6C1E
VER . 1

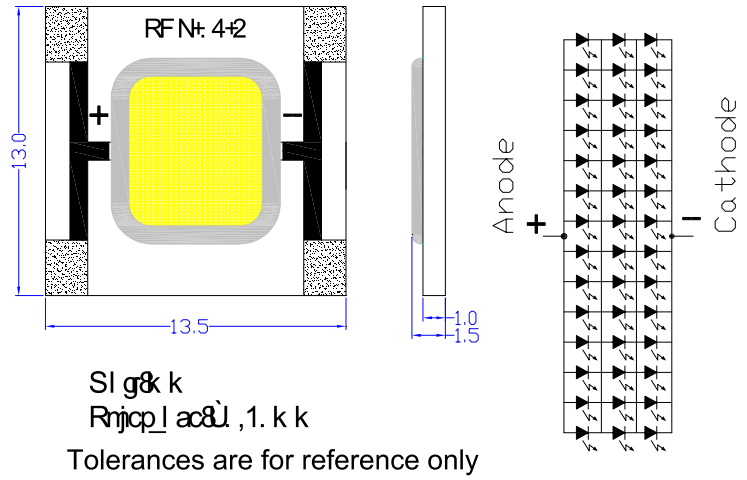
■ Features

- High-power LED
- Long lifetime operation
- Based on ceramic substrate to achieve long operating life
- Typical luminous flux performance 420lm@600mA
- Possible to attach to heat sink directly without using print circuit board.

■ Applications

- Indoor & outdoor lighting
- Stage lighting
- Reading lamps
- Display cases, furniture illumination, marker
- Architectural illumination
- Spotlights

■Outline Dimension



Tolerances are for reference only

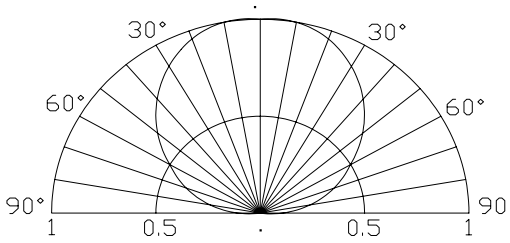
■Absolute Maximum Rating

Item	Symbol	Value	Unit
DC Forward Current *1	I_F	700	mA
Pulse Forward Current*2	I_{FP}	1400	mA
Reverse Voltage	V_R	15	V
Power Dissipation*1	P_D	6,840	mW
Operating Temperature	Topr	-30 ~ +85	ę
Storage Temperature	Tstg	-40~ +100	ę
Lead Soldering Temperature	Tsol	260ę /5sec	+

*1, Power dissipation and forward current are the value when the module temperature is set lower than the rating by using an adequate heat sink.

*2, Pulse width Max.10ms Duty ratio max 1/10

■Directivity



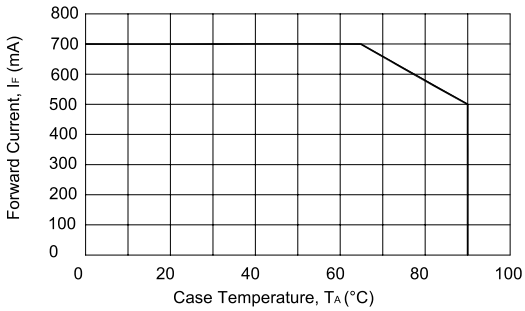
‘ Electrical -Optical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Sl gr
DC Forward Voltage	V_F	I_F=600mA	9.0	10.2	11.4	V
DC Reverse Current	I_R	V_R=15V	-	-	100	µA
Luminous Flux	ĵ v	I_F=600mA	360	420	-	lm
Color Temperature	CCT	I_F=600mA	-	6500	-	K
Chromaticity Coordinates*	x	I_F=600mA	-	0.31	-	
	y	I_F=600mA	-	0.33	-	
50% Power Angle	2θ1/2	I_F=600mA	-	120	-	deg

Note: Don’t drive at rated current more than 5s without heat sink for High Power series.

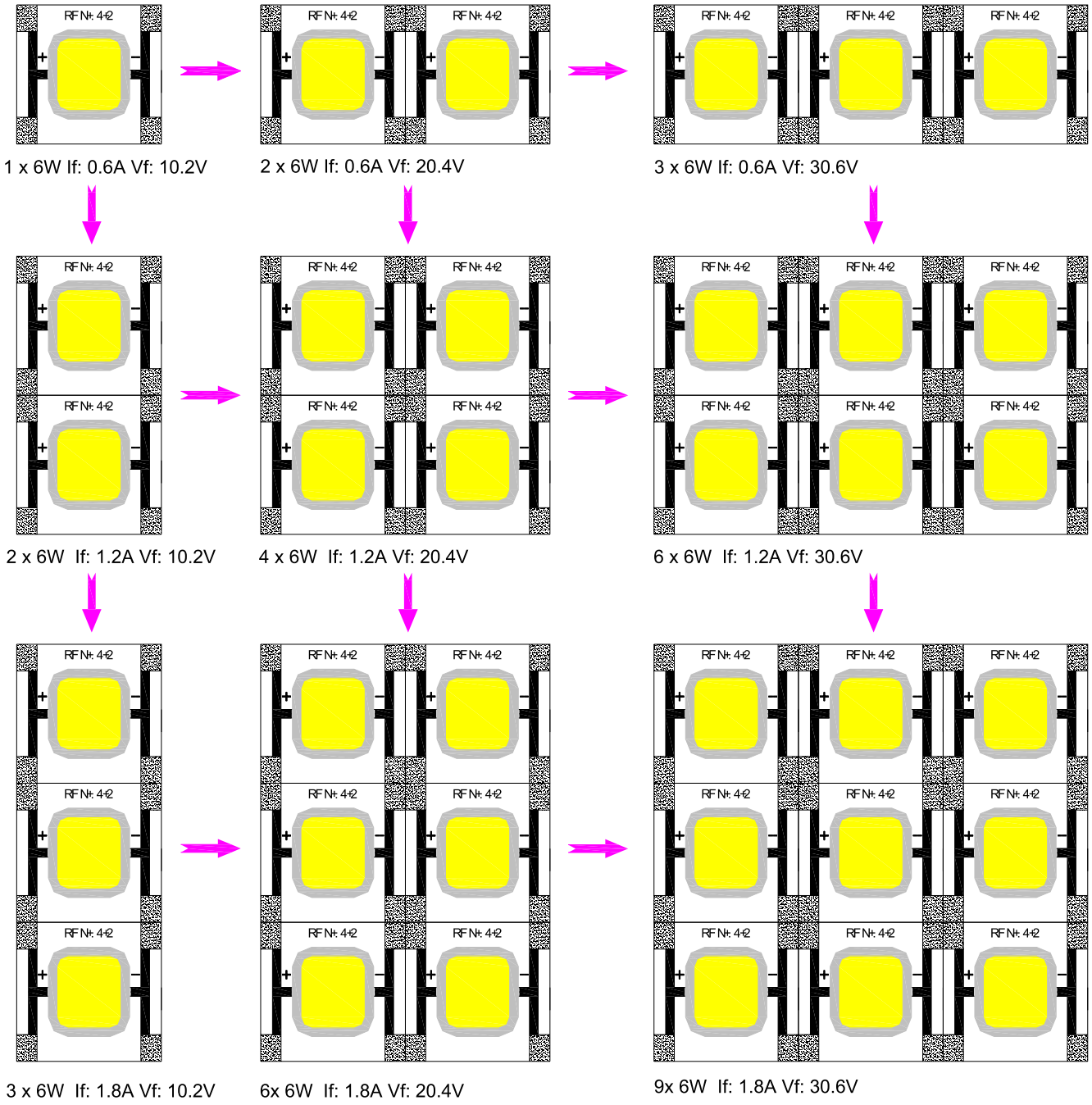
* Tolerance of chromaticity coordinates is ±10% , * Tolerance of Luminous Flux is ±20%

<Fig.a> Forward Current Derating Curve



‘ Customer DIY

Customers can refer to the following do DIY



Customer DIY

‘ Heat design

The following pictures show some measurements of mounted 5W Led on the heat sink for each board A and B (See Fig 1) with using thermograph to make an observation about heat distribution. Each boards is tested at various current conditions.

As a result, LED needs larger heat sink as much as possible to reduce its own case temperature.

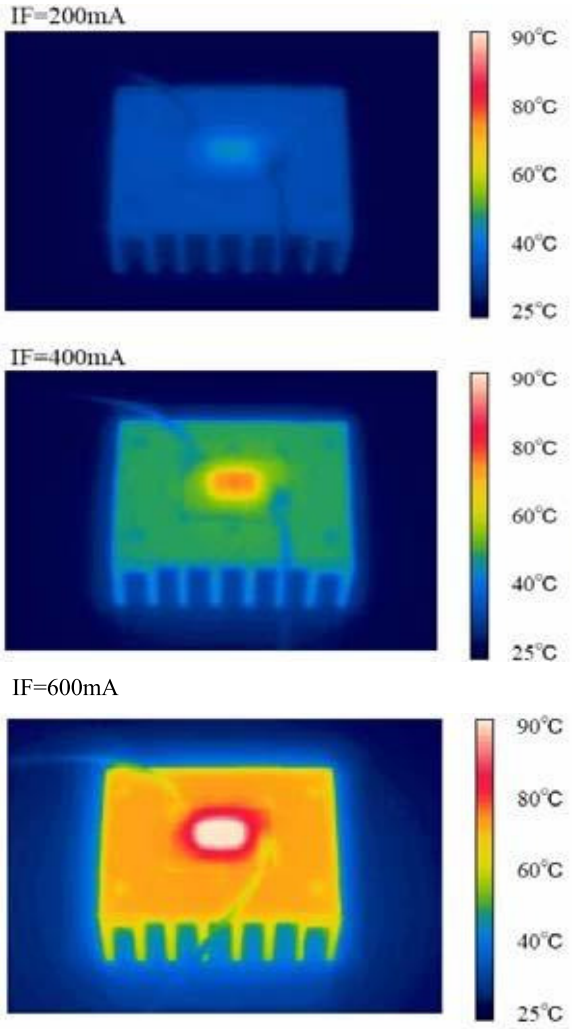
Fig. 1 Configuration pattern examples for board assembly

Board	LED power	Material	Surface area (m) Min.
A	5W	Al	20,600
B	10W	Al	41,200
C	25W	Al	103,000
D	50W	Al	206,000
E	100W	Al	412,000
F	200W	Al	824,000
G	300W	Al	1236,000

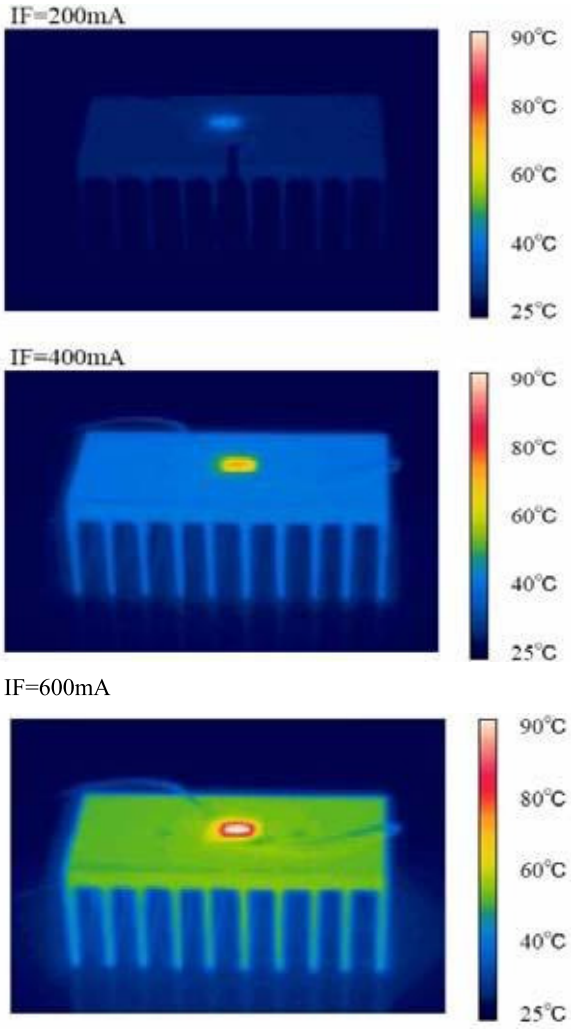
Above tested LED device is attached with adhesive sheet to the heatsink.

For reference's sake, Tj absolute maximum rating is defined at 115ע as a prerequisite on design process of 5W LED.

<Fig.2> Board A (surface area=10,300m)



<Fig.3> Board B (surface area=20,600m)



‘ **Heat design→Design flow chart**

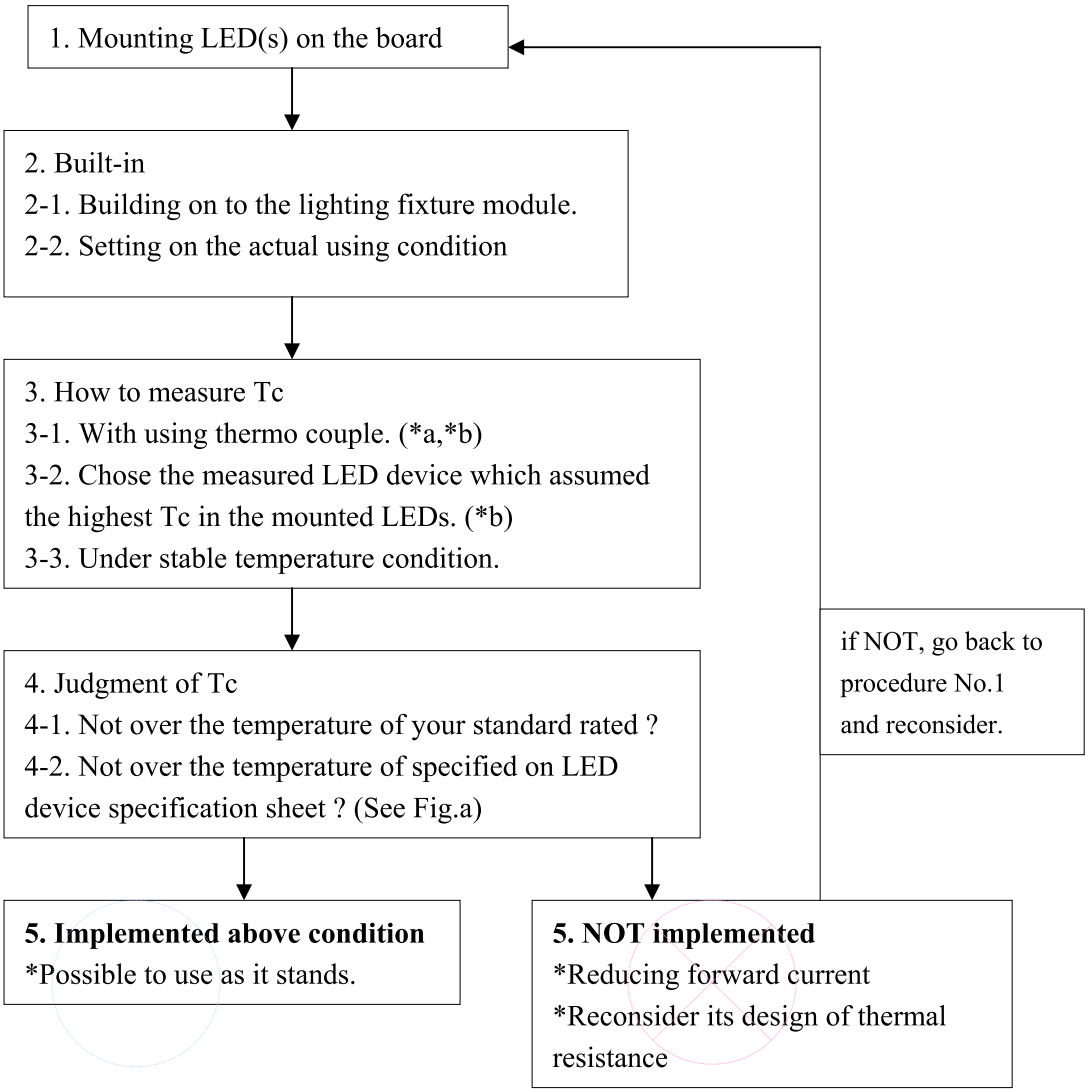
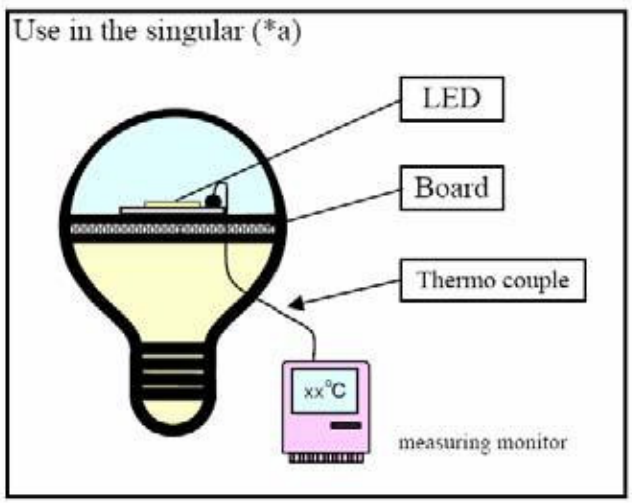
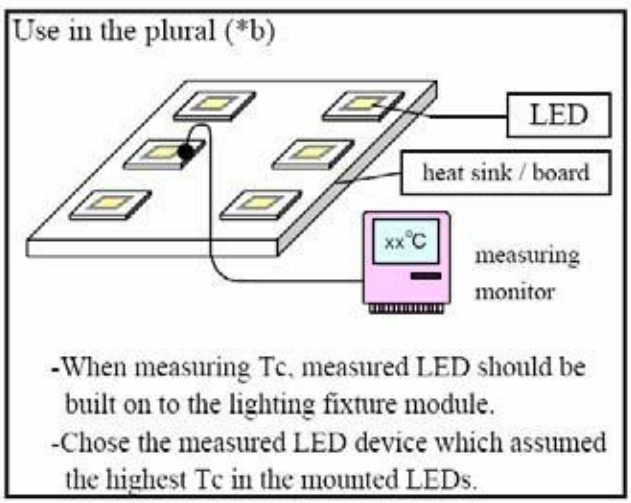


Fig.4

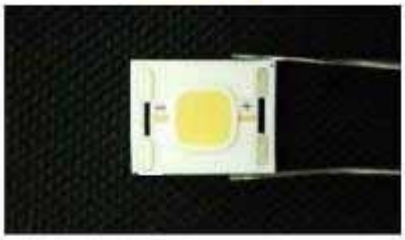




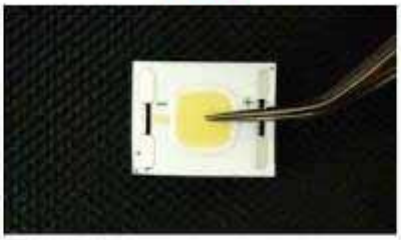
‘ **Handling→Manually handling**

Use tweezers to catch hold of LEDs at the base substrate part. Do not touch the lens with the tweezers and fingers. Do not press on the lens.

Correct

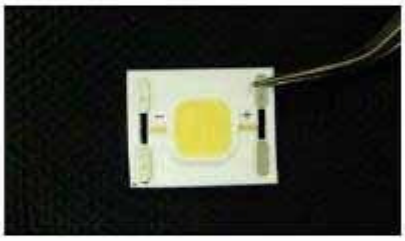


Wrong

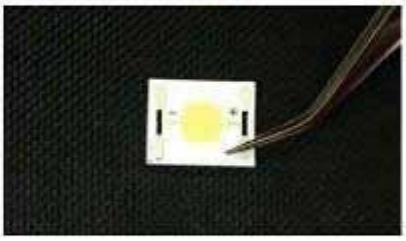


Do not touch the yellow emittion resom part.

Correct

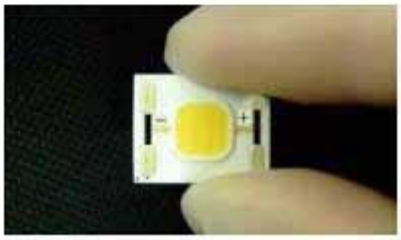


Wrong

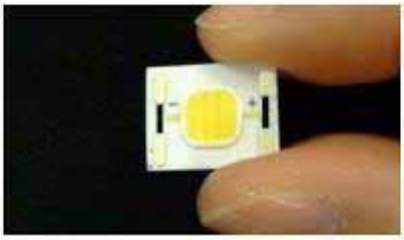


Do not touch both electrodes.

Correct



Wrong



Do not touch with naked finger. Strongly recomennded to use a fingertip.

‘ How to mounting

Generally, there are 2 ways to mount Ceramic Series LED. Fig.5 shows just the way to attach to heatsink.

And Fig.6 shows the way to clip with using cover plate as below.

Ceramic Series LED to the heat sink or board, applying heat conduction sheet (or some kind of grease) between LED device and heat sink is highly recommended to make good use both heat sink and LED device as its potential.

Fig.5

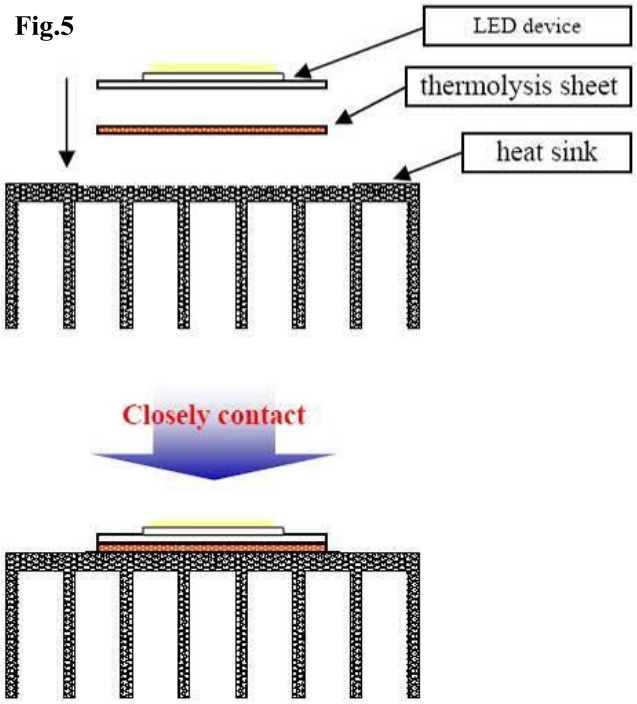


Fig.6